Challenges in Screening and Diagnosing Frailty Syndrome: Which Tool to be used?

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Frailty syndrome has become one of the geriatric syndromes with an increasing risk of debilitating clinical outcome.[1,2] Accordingly, the current treatment guidelines have been focusing in viewing frailty syndrome as an important aspect to be considered. The International Diabetes Federation (IDF) classifies the guideline for managing the elderly with type 2 diabetes mellitus based on their functional status, whether it is functionally independent or dependent. Functionally dependent group is further classified as subgroup of frail and/or demented people.[3] Special consideration on older people has also been discussed as a topic on the treatment algorithm for hypertension and dyslipidemia.[4,5] Furthermore, the guideline published by the American College of Surgeons has recommended that baseline frailty score determination as one of the important checklists for optimal preoperative assessment in geriatric patient.[6] Undoubtedly, physicians should have the knowledge and skill on frailty syndrome, including the methods to screen and diagnose frailty syndrome in order to improve health outcome of geriatric patients.

Frailty syndrome can be viewed as a clinical syndrome (phenotype) or deficits accumulation.[7,8] Frailty syndrome which consists of physical, psychological, and social domain, should be considered as a continuum spectrum of fit/robust, pre-frail, and frail state with dynamic transition among these spectrums over a period of time.[9,10] Fried et al[1] hypothesize that decreases in metabolic rate, muscle strength and VO_2 maximal due to sarcopenia contribute to the manifestation of physical frailty, such as exhaustion, slowness of walking speed, decreased body weight and physical activity that eventually lead to disability and dependency. This pathophysiologic approach measures clinical manifestation of frailty syndrome regardless of the etiology.[1] In contrast, the index method consists of deficits which are constructed using variables originated from a cohort study aimed to determine variables that can predict morbidity and mortality. Those items further consider as frailty predictors.[8,11]

The ideal scoring system to define frailty should be able to assess all domains of frailty syndrome and its severity, as well as easy to be conducted in daily clinical practice and able to measure the changes over time or after intervention(s). There are many scoring systems to define frailty state, but mostly are developed from phenotype concept described by Fried et al in Cardiovascular Health Study (CHS) or deficits accumulation concept described by Rockwood et al in Canadian Study of Health and Aging (CSHA). Those two scoring systems have been validated in large populations.[1,8,9,11]

The phenotypic concept mainly focus on physical domain of frailty syndrome, while the index method usually tries to evaluate all three domains of frailty syndrome. The phenotypic approach may be easier to be conducted, while in comparison it may be challenging to implement the index method in daily clinical practice as it

consists of many variables to be evaluated. In addition, deficits or co-morbidities included in the scoring system may be sustained or relatively unchanged after intervention especially in short period of time, meanwhile it is easier to measure changes in gait speed and muscle strength as the phenotypic scoring systems' components from time to time or after certain intervention.[9,11]

Although there has been no gold standard method to define frailty syndrome until now, de Vries[9] reported in his systematic review that the index method better predict clinical outcome of frailty syndrome. Nevertheless, the validity and reliability of scoring systems to define frailty syndrome may vary in different populations.[12] Therefore, we publish the diagnostic test study of scoring system for frailty syndrome done by Seto et al in this edition of Acta Medica Indonesiana-The Indonesian Journal of Internal Medicine.This study indicates that compared to Frailty Index 40 item (FI 40 item) scoring system, the Cardiovascular Health Study (CHS), Study of Osteoporotic Fracture (SOF) and Comprehensive Geriatric Assessment-based Frailty Index (FI-CGA) scoring systems had low sensitivity (8.8-41.2%), but each scoring system had a perfect specificity (95-100%) and high positive predictive value (PPV 73.7-100%). Lack of sensitivity will increase the risk of a frail state to be misdiagnosed.

In general, which scoring system should be used in screening and diagnosing frailty syndrome would depend on its purpose, practicability and applicability to be implemented in certain clinical settings. However, lesson learned from the study done by Seto et al[13] emphasizes that individuals with a low suspicion of frailty better screened with FI 40 item, while FI-CGA, SOF and CHS may be used in individuals with a high suspicion of frailty. It is recommended that frail individual screened using FI 40 item is further evaluated using FI-CGA, SOF or CHS to identify intervention modalities and follow up improvement over time or after intervention. Obviously this study provide new paradigm of reasoning in choosing scoring system to screen and diagnose frailty syndrome.

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